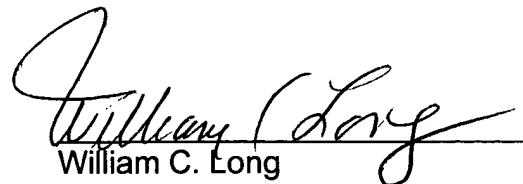


Image AF1754

Patent Case SD-200B

The undersigned hereby certifies that this BRIEF ON APPEAL is being deposited with the United States Postal Service as prepaid first class mail in an envelope addressed to the Assistant Commissioner for Patents, Alexandria, VA on December 10, 2003.



William C. Long

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of :  
Nabil Rizkalla : Group Art Unit: 1754  
Serial No. 10/056,710 : Examiner: Nguyen  
Filed: November 13, 2001 :  
For: ETHYLENE OXIDE CATALYST

APPELLANT'S BRIEF UNDER 37 C.F.R. 1.19

Honorable Commissioner of  
Patents and Trademarks  
Alexandria, VA 22313

Sir:

This is the appellants' Brief in support of their appeal from the decision dated May 20, 2003 finally rejecting Claims 1, 2 and 4 - 7 in the subject application.

(1) Real Party in Interest

The real party in interest is Scientific Design Company, Inc.

(2) Related Appeals and Interferences

There are no related appeals or interferences.

(3) Status of Claims

Claims 1, 2 and 4 - 7 are pending, appeal is taken from the final rejection of these claims. Claim 3 has been canceled.

(4) Status of Amendments

An Amendment in response to the Final Rejection dated May 20, 2003 was filed August 22, 2003. An Advisory Action dated September 12, 2003 indicated that the Amendment did not place the case in condition for allowance.

(5) Summary of the Invention

Ethylene oxide is a chemical of great commercial importance. It is universally produced by the molecular oxygen oxidation of ethylene using as catalyst silver on a solid support such as alumina.

For more than 50 years leading chemical companies have conducted extensive research to improve the performance of the catalysts used to produce ethylene oxide by adding various promoters to the basic supported silver formulation. An alkali metal such as cesium is universally used with the supported silver.

The present invention resides in the discovery that higher than usual amounts of alkali metal in combination with certain relative

amounts of a sulfur component provide a promoter combination which is both simple and effective for ethylene oxide production.

(6) Issues

The issues presented for review are whether the rejection of claim 1, 2 and 4 – 7 variously under 35 USC 102(b) as anticipated by Rizkalla et al USP 5,854,167, under 35 USC 102(e) as anticipated by Rizkalla et al USP 5,905,053 or Rizkalla et al USP 5,958,814, or under 35 USC 103(a) as unpatentable over Rizkalla et al USP 5,854,167 should be sustained.

(7) Grouping of the Claims

The claims presently on appeal stand or fall together.

(8) Argument

In the area of ethylene oxide catalysis, an enormous number of materials have been proposed as catalyst promoters. In an effort to distinguish the catalyst composition of the present invention from those taught in the prior art, applicants have used in the instant claims both specific exclusionary language, i.e. "rhenium and transition metal free" as well as the phrase "promoter combination consisting essentially of" the designated components.

Each of the references which have been applied requires for the special effect claimed a specific named promoter in the catalyst formulation. Thus USP 5,854,167 requires a germanium or tin component as an essential promoter in the described formulation, USP 5,905,05 requires a pnictogen component as an

essential promoter in the described formulation and USP 5,958,844 requires a lanthanide component as an essential promoter.

Quite clearly, the use of the above named components in the catalyst formulations of the prior art provide important and improved effects to the prior formulations. By the use of the "consisting essentially" language in the instant claims applicants have excluded formulations such as those of the art which require the designated components.

The Examiner in his rejection of the instant claims has maintained that the phrase "consisting essentially" excludes only components which are "contrary and inimitable to the claimed invention, *In re Janakeramia Rao*, 137 USPQ 893." It appears to be the position of the Examiner that the "consisting essentially" language excludes only those materials which have a "negative effect on the performance" of the catalyst.

Applicants respectfully contend that the Examiner is incorrect in his interpretation. It is manifestly impossible to exclude by name each and every promoter combination taught in the prior art. By the use of "consisting essentially" applicants have sought to distinguish their invention from prior formulations which require inclusion of a specific named component for the improved effect taught.

In the context of ethylene oxide catalysis, the provision of components which provide a substantial improved effect changes the nature of the catalyst in the sense of significantly improving the catalyst. It is not just components which adversely affect or improve catalyst performance which are excluded.

In the view of applicants, the present claims distinguish from the teachings of the catalysis by excluding from the instant claimed formulations the components specified by the references as critical to there catalysts.

There has been extensive work by many researchers in the field of ethylene oxide catalysis. There have been an extremely large number of catalyst formulations proposed with sometimes conflicting claims of effectiveness. Against this background of extensive prior work, the present inventors have devised a catalyst which is relatively simple in composition and which is highly effective for the oxidation of ethylene to ethylene oxide. Reduced to its essentials, the catalyst of the present invention comprises a support such as alumina having deposited thereon silver as an essential component together with a promoter combination which consists essentially of the designated amounts of alkali metal together with sulfur and optionally fluorine. By the term "consisting essentially" the compositions claimed herein are limited to the specified components and do not encompass compositions which contain other materials which lend a significant effect to the catalyst performance. The present invention actually comprises the use of amounts of alkali metal such as cesium which are higher than those generally deemed effective in the prior art. The surprising discovery has been made that at such high alkali metal concentrations, which normally would result in a deactivation of the catalyst, the provision of the designated amounts of the sulfur component results in a catalyst having surprisingly and superior characteristics for the production of ethylene oxide.

This is apparent from a consideration of the data contained in the experiments presented in the instant specification.

Accordingly, it is respectfully submitted that the present discovery is indeed surprising when considering the teachings of the prior art and indeed is novel since the specific formulations claimed are not described in the references of record.

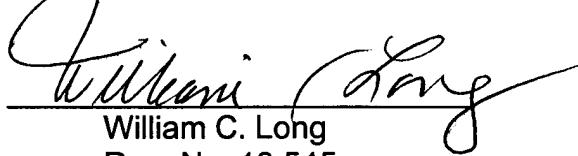
The Rizkalla et al references which have been relied on disclose catalyst formations which are different from those encompassed herein, requiring as they do a special and particular component the presence of which is excluded from the instant claims. The specific, simplified formulations of the present invention are not taught by the references.

It is therefore, respectfully requested that the rejection of the claims under 35 USC 102(b) on Rizkalla et al USP 5,854,167 under 35 USC 102(e) on Rizkalla et al USP 5,905,053 and on 35 USC 103(a) on Rizkalla et al USP 5,854,167 should not be sustained.

Withdrawal of this rejection is respectfully requested.

Two extra copies of this Brief are enclosed. Please charge the \$330.00  
fee for filing this Brief to Deposit Account No. 01-2138.

Respectfully submitted,



William C. Long  
Reg. No. 18,545  
Attorney for Applicant (s)

December 10, 2003

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Morristown, NJ 07960  
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(9) Appendix

(a) The claims on appeal are:

Claim 1. A rhenium and transition metal free catalyst for the oxidation of ethylene to ethylene oxide comprised of silver on a solid support and containing a promoter combination consisting essentially of (1) an alkali metal component in amount of 1200 to 3000 ppm, based on the weight of the catalyst; and (2) a sulfur component in amount of 40-150% of the equivalent weight necessary to form the alkali metal sulfate.

Claim 2. The catalyst of claim 1 wherein the alkali metal component is cesium.

Claim 4. The catalyst of claim 1 wherein the support is alpha alumina.

Claim 5. The catalyst of claim 1 comprised by weight of 5-20% silver.

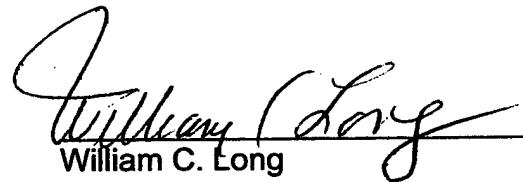
Claim 6. The catalyst of claim 1 additionally containing 10-300 ppm of a fluorine component.

Claim 7. The method for producing ethylene oxide which comprises reacting ethylene and molecular oxygen in the presence of the catalyst of claim 1.



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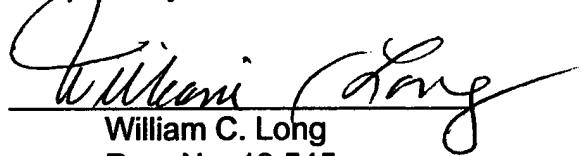
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